CLAIM AMENDMENTS

1. (Currently Amended) A dynamic air classifier for separation of granular and powdery materials into fractions of different grain sizes comprising:

a rotary cage (1) adapted to create a vortex when [[subject]]subjected to ~~fluid~~ air flow, the rotary cage (1) classifying the materials into fine particles and coarse particles;

a recovery chamber (2) ~~for fine materials with~~ having [[a]]an outlet bottom, said recovery chamber (2) being defined by a casing (5), wherein the recovery chamber (2) receives the fine particles mixed with air from the rotary cage (1);

said recovery chamber (2) coaxially arranged in a protrusion of the rotary cage (1), the recovery chamber (2) adapted to use the vortex created by the rotary cage for cycloning ~~said material~~ the fine particles mixed with air and separating the fine particles from air; and

said recovery chamber (2) ~~comprising openings in the casing (5) allowing the passage of the centrifuged material towards ducts (8) for collecting the material located outside the chamber~~including a fine particles outlet and an air outlet, wherein the fine particles separated from air exit through the fine particles outlet and a dedusted air exits through the air outlet.

2. (Previously Presented) The dynamic air classifier as in Claim 1, wherein said recovery chamber (2) comprises fixed and/or mobile deflectors (4,7).

3. (Currently Amended) The dynamic air classifier as in Claim 1, wherein said recovery chamber (2) for fine materials is cylindrical or cone-shaped, ~~the cone being possibly open either at the top or at the bottom~~ wherein the recovery chamber (2) is open to the rotary cage (1) at an inlet and includes at least two separate openings on the outlet bottom, wherein the at least two separate openings define the fine particles outlet and the air outlet.

4. (Currently Amended) The dynamic air classifier as in Claim 1, wherein said recovery chamber (2) ~~for fine material~~ has a length that corresponds to 2 to 6 times the length of the rotary cage (1).

5. (Currently Amended) The dynamic air classifier as in Claim 1, wherein said recovery chamber (2) ~~for fine materials~~ and said rotary cage (1) share the same vertical axis, the recovery chamber (2) being positioned below and protruding from said cage (1).

6. (Previously Presented) The dynamic air classifier as in Claim 1, wherein the deflectors (4) that are positioned in the outlet part of the rotary cage (1) and/or in the recovery chamber (2) are driven by the rotation means of the cage (1) or by a separate device.

7. (Previously Presented) The dynamic air classifier as in Claim 1, wherein the deflectors (4) that are positioned in the outlet part of the rotary cage (1) are attached to said cage (1) itself.

8. (Currently Amended) The dynamic air classifier as in Claim 1, wherein an air-extraction duct (3) passes through the outlet bottom of the recovery chamber (2), said duct having a diameter between 30 and 95% of the bottom diameter of the recovery chamber (2) ~~for fine materials~~.

9. (Previously Presented) The dynamic air classifier as in Claim 1, wherein a plurality of openings and/or slits are provided at the bottom of the recovery chamber (2).

10. (Previously Presented) The dynamic air classifier as in Claim 9, wherein there are a plurality of ducts (8) below said slits and/or openings, leading to a means for conveying the material.

11. (Previously Presented) The dynamic air classifier as in Claim 9, wherein there are a plurality of ducts (8) below said slits and/or openings, leading to a circular airslide conveying the material to another means of conveyance.

12. (Currently Amended) The dynamic air classifier as in Claim 1, wherein ~~there are, on top of the bottom of~~ the recovery chamber (2)~~, outside [[the]]an air-extraction duct (3), one or several conical, cylindrical or radial (angled or straight)~~ includes at least one deflector[[s]] (7) ~~so as to~~ proximate the outlet bottom of the recovery chamber (2), outside of an air-extraction duct (3), wherein the at least one deflector (7) minimises the turbulence near the bottom of the chamber and preventing[[to avoid that]] the ~~material is~~ fine particles from being picked up again by the air.

13. (Currently Amended) The dynamic air classifier as in Claim 1, wherein ~~there are a plurality of openings in the lower part of~~ the casing (5) of the recovery chamber (2) includes a plurality of openings in a lower portion of the casing (5), ~~these~~ at least one of the plurality of openings leading to the ducts for collecting the fine ~~material~~particles.

14. (Previously Presented) A method of separation according to grain sizes by means of a dynamic air classifier, comprising the following steps:

feeding the material to be treated (13) to the rotary cage (1);

sorting between large and fine particles in the rotary cage (1) depending on the rotation velocity and air intake;

rejecting the large particles towards the refuse chamber (17);

recovering the fine materials in the recovery chamber (2) positioned coaxially with the rotary cage;

using the vortex created by the rotary cage and possibly further accelerated by mobile or fixed deflectors (4) for cycloning the fine material;

separating the dedusted air and the fine particles and extraction of the latter to a means of conveyance.

15. (Canceled)

16. (Currently Amended) The dynamic air classifier as in Claim 1, ~~wherein~~ further comprising a central opening between the rotary cage (1) and the recovery chamber (2), intersecting an axis directly connecting the rotary cage (1) and the recovery chamber (2) so that the recovery chamber (2) uses the vortex created by the rotary cage (1).

17. (Previously Presented) The dynamic air classifier as in claim 16, wherein no intervening structure is disposed along the axis between the rotary cage (1) and the recovery chamber (2).

18. (Previously Presented) The dynamic air classifier as in claim 1, wherein the rotary cage (1) comprises a vortex creation apparatus and the recovery chamber (2) is free of any vortex creation apparatus.

19. (New) The dynamic air classifier as in Claim 1, wherein the rotary cage includes at least one coarse particles outlet, wherein the coarse particles exit the rotary cage through the at least one coarse particles outlet and the fine particles mixed with air enter the recovery chamber.

20. (New) A dynamic air classifier comprising:

a material inlet receiving materials including coarse particles and fine particles;

a rotary cage including a vortex creation apparatus to generate a vortex, the rotary cage including a classifier classifying the coarse particles from the fine particles;

a coarse particle outlet allowing collection of the classified coarse particles from the rotary cage;

a recovery chamber vertically arranged under the rotary cage, the recovery chamber receiving the classified fine particles mixed with air from the rotary cage with the classified fine particles mixed with air continuing to swirl in the vortex from the rotary cage through the recovery chamber;

wherein the recovery chamber includes at least one deflector and uses the vortex created by the rotary cage to cyclone and separate fine particles from air;

wherein the recovery chamber includes a fine particle outlet and an air outlet, the fine particle outlet coaxially arranged with the air outlet, wherein the fine particle outlet circumscribes the outer periphery of the air outlet, wherein the fine particles separated from air is recovered through the fine particle outlet and a dedusted air exit through the air outlet.

21. (New) The dynamic air classifier of Claim 20, wherein the recovery chamber is attached directly to the rotary cage, wherein the rotary cage and the recovery chamber are arranged without any intervening structure between them, thereby allowing the recovery chamber to utilize the vortex generated by the rotary cage, wherein the recovery chamber is free of any vortex creation apparatus and adapted to separate the fine particles from air and recover the fine particles without need of any external filters or cyclones.

22. (New) The dynamic air classifier of claim 20, wherein the recovery chamber is cylindrical or conical, wherein the recovery chamber is conical, an angle

of a cone generating line with a revolution axis of the cone is less than 30°, wherein a length of the recovery chamber is between 2 to 5 times a length of the rotary cage.